



MDARC #1 LARGE CLUB  
OF THE YEAR PACIFIC  
DIVISION ARRL

# the CARRIER.....

Published Monthly by the Mount Diablo Amateur Radio Club

MDARC FIELD DAY CALL W6CX; 2M REPEATER W6CX/R 220 REPEATER W6CX/R MEMORIAL CALL SIGN W6LGW  
Volume XXX December 1982 12

## CLUB CALENDAR

M E R R Y C H R I S T M A S

F R O M

Y O U R N E W B O A R D

M E M B E R S

Dec. 12 M.D.A.R.C. Annual Christmas  
Party  
Dec. 13 Budget Meeting 8PM  
Dec. 20 Board meeting 8:00 P.M.  
County O.E.S. Bldg. 50  
Glacier Dr., Martinez  
Everyone is welcome to the Board Meetings.  
Dec. 25 MERRY CHRISTMAS  
Jan. 1 HAPPY NEW YEAR

The new Board for 1983 reads this way:

PRESIDENT	BOB DAHL	KA6LSL
VICE PRESIDENT	JOE SIMPSON	KA6EBF
SECRETARY	CAROLINE DAHL	KA6LSK
TREASURER	LARRY KAYE	W6CPO
EMERGENCY COORDINATOR	JIM HOUSE	KA6IVF
BOARD DIRECTOR	DICK BROWN	KT6X
BOARD DIRECTOR	DON BERTRAM	N6EEQ

## Nets

"Ya all check in now ya Hear!"  
Tech Forum/Swap NET  
Thursdays 7:30 P.M. 147.66/06  
Contra Costa Emergency NET  
Thursdays 8:30 P.M., 146.43 MHz simp.  
Parky NET  
Every Night 3895 +/- QRM 10 P.M.  
DARC NET  
Thursdays 7PM on 146.54 MHz  
COCORA NET  
Mondays 7:35 PM on 147.135/735

Printing: W6KLM KA6DPW KA6HHN

EDITOR: Doug Smith, WA6GON P.O. Box 23222, Pleasant Hill, Calif. 94523 0222

PRESIDENT.....	KT6X	Dick Brown	4125 Sacramento St., Concord CA	94521 676-9048
VICE-PRESIDENT.....	WB6TEE	Don Peattie	2417 Lomond Ln. Walnut Creek CA	94598 935-2636
SECRETARY.....	N6EJU	Dee Koester	438 Diablo Court, Martinez, CA	94553 228-8727
TREASURER.....	KA6IZI	Nancy Hodgson	120 Summit Road Walnut Creek, CA	94598 933-8716
EMERGENCY COORDINATOR..	KA6IVF	Jim House	1919 Ygnacio Valley #49, Walnut Creek	939-8965
BOARD MEMBER.....	K6XC	Ron Luttringer	440 Diablo Court, Martinez, CA	94553 229-3987
BOARD MEMBER.....	N6EEQ	Don Bertrand	3515 Honeysuckle Way, Concord	94518

This edition is not copywrited. It is OK to quote from us, provided credit is given. Thank You!

Next Board Meeting at: C.C. County O.E.S. Building, 50 Glacier Dr., Martinez, Dec. 20 8PM

DEADLINE FOR THE NEXT ISSUE: Articles, Classified Ads, etc. by Dec. 24, 1982

## MDARC Board Meeting

November 21, 1982

BOARD MEMBERS PRESENT: KT6X, KA6IZI, N6EJU, K6XC, N6EEQ, KA6IVF.

MEMBERS PRESENT: WA6DQN, W6LKE, KA6EBF, KD6YA, KA6LSK, KA6LSL, W6CPO.

The meeting was called to order by our President Dick Brown KT6X at 8:PM.

The minutes were approved as printed in the CARRIER.

OLD BUSINESS: \$125.00 was grossed from Auction. Budget Planning meeting changed to Dec. 13.

EDUCATION: KT6X informed us that the Club will be charged for Spring classes. Discussion took place on where to hold future classes next year. Several suggestions were exchanged.

### COMMITTEE REPORTS:

REPEATER: M.M.S.P. that the officers for Rocky Ridge Repeater Group be approved. Repeater Chairman for 1983 is Dick Brown KT6X, Treasurer Norma Davis N6EJZ, Secretary Dee Koester N6EJU, Paul Parker WB6DHH, Repeater Tech., Don Gilley, WA6VHW and Chuck Welch, WA6MWU; members at large. TREASURER NANCY KA6IZI reports that we have \$751.68 in checking and \$1280.28. Our membership so far for 1983 stands at 27.

RED CROSS: Don N6EEQ reports no emergencies

SOCIAL CHAIRMAN: Carolyn KA6LSK reports plans for Christmas Party going well. M.M.S.P. that \$50.00 be given to Carolyn toward purchase of ladies prizes for Christmas Party.

DOOR PRIZE CHAIRMAN: Val KD6KV reports that he has \$169.50 in prize fund.

NEW CHAIRMAN FOR 1983 are Ron, K6XC Door Prize, Doug Smith WA6GON, CARRIER Editor, Dick Brown KT6X, Repeater, Don Bertrand N6EEQ, Red Cross; Joe Gregory WA6DQN, Public Service.

Meeting Adjourned at 10 PM

Respectfully Submitted  
Dee Koester, N6EJU  
Secretary

## MDARC General Meeting

November 19, 1982

Because of the Auction the General Meeting was very short and we conducted no new business. Everyone had a good time at the Auction.

### CONDOLENCES

MDARC extends its sympathy to Cliff, WB6EAK Southern Chapter member of MDARC for the loss of his wife Inez.

Tnx K6IMV

## FIELD DAY 1982

The November issue of QST contained Field Day scores and all in all W6CX didn't do all that bad. Some 70 Club members (and a few others) operated from the top of Mt. Diablo in the seven transmitter category making 2341 QSO's on 80M, 40M, 20M, 15M, 10M, 2M, 220Mh, and with visible light blinker. With credits for message handling, publicity and the like we had a verified score of 7180 points. Setting up and partying on Friday, operating Saturday and Sunday, and tearing down Sunday afternoon, We all had a super time.

Our score made us the clear winner of the East Bay Section and the 8th highest score in six land. The top score in the Nation was 17,510 by K7MX operating in the 3A-battery category. We were 81st nationally in a field of about 900 Clubs submitting logs.

I want to personally thank each of you who have participated in Field Day these last several years. Who can forget the 1980 effort which resulted in over 18,000 points! Your efforts have made the job of Field Day Chairman easier and I very much appreciate it. It's time though for new ideas and new leadership and I hope you will give the new Field Day Chairman the willing support you have given me.

Don W6EEN

## Renewing Membership

Start the New Year right by supporting your club through subscriptions to QST (ARRL). Subscribing this month are Joe Gregory, WA6DQN, Don Doughty, W6EEN, and Doug Smith, WA6GON. For each subscription the Club earns \$2.00. When you receive your notice from ARRL indicating renewal time is near make checks payable to Mt. Diablo Amateur Radio Club and mail them with the application card to me or bring them in at the monthly meeting.

Thank you to the 25 subscribers in 1982 who made a net contribution to the Club of \$50.00. It is exciting to see a significant rise from the \$21.00 earned in 1981. Looking forward to an even better 1983.

73, Nancy KA6IZI



## *The President's Corner....*

Next month this column will be written by your newly elected President. As a Club you did good by electing an excellent board. Bob Dahl will bring some new worthwhile ideas as well as maintain the important traditions of the Club. He will need a lot of help. Say "yes" when he calls you.

Monday night, December 13, we will have one of the most important board meetings of the year. It's the budget planning meeting that ALL committee heads attend. If you have a pet project or an objective for the Club that involves funding, be there. (or don't complain later)

Be aware of a potentially serious problem facing the hams in Contra Costa County. Morris Young, KN6M, who is a well known contesteer in this area is taking a great deal of pressure from his newghbors associated with R.F.I. problems. The problem has been brought to the county director of planning. There is considerable concern that it could lead to recommendations for tower ordinance in the County. This column is not large enough to review all the facts on the situation. Keep an eye on the Contra Costa Times. (front page 12/4/82)

Thanks to you most of the objectives your 1982 board were met. It was a lot of enjoyment for me sprinkled lightly with a few problems. This is, without question, the best organized Amateur Radio Club and is comprised of truly remarkable hams. Thanks very much for making my year such a rewarding one. 73 Dick, KT6X

## **Repeater News**

R.R.R.G. Meeting Nov. 16, 1982

The meeting was called to order at 8PM by Paul Parker WB6DHH.

The minutes were read and a motion made that they be approved as read.

TREASURER: N6EJZ reported that we have \$842.66 not including this month's bills. Paul WB6DHH gave a report on the progress of W6CX 2 meters and W6CX 220. New batteries are needed and will be purchased. Funds have been allocated for same. M.M.S.P. that we go ahead and purchase batteries. M.M.S.P. that dues remain the same for next quarter.

Motions made that the following be placed in nomination for 1983. Norma Davis N6EJZ Treasurer, Dee Koester N6EJU, Secretary, Dick Brown KT6X Chairman, Paul Parker WB6DHH Repeater Tech., Chuck Welch WA6MWU and Don Gilley WB6VHW members at large. M.M.S.P. for the approval of those nominated. R.R.R.G. meetings will be increased by 3 more meetings a year. Steering committee

to meet every month.

Plans are to have more social type meetings such as Saturday breakfast meetings.

NARC Newsletter to be sent to Treasurer Norma Davis and Paul Parker. Both will also represent the group at NARC meetings. Motion made that \$50.00 be added to MDARC for use of the church. Motion failed after a show of hands.

Discussion took place concerning recent TVI problems. Motion made that a committee be formed to investigate and keep apprised of the current problem. Motion Passed. Secretary to send to ARRL for packet with information concerning antenna ordinances. Following the meeting Paul WB6DHH showed slides of the repeaters and repeater sights.

Respectfully Submitted  
Dee Koester, N6EJU

## **WAYNE GREEN FOLLOWUP**

Flying on an airplane from Tokyo to Bangkok Wayne Green used his space age type writer to drop me a line thanking the MDARC for putting on the October Interclub meeting at which he spoke. He suggests that the meeting be an annual affair as he feels very strongly about the need for interclub communication on the regional level. Let the Club leadership know whether or not you think this is a good program idea.

He stopped in the Bay Area on his way back from the Far East and we spent some time together. One of the high interest items to him was the idea of a DX expedition to the Borneo area where four new countries have been established.

He would like to put all four on the air simultaneously for one of the big DX contests about a year from now. Anyone interested?

And last, I would like to say thank you personally to all those who participated in "THE WAYNE GREEN CAPER" Without all their help in the setup, agenda, photo, promotion, prize, dinner, security, etc etc - areas it never would have happened.

Don - W6EEN

## **Carrier Classifieds**

FOR SALE:

A wonderful Kmas present for novice or extra! HW-101 W/AC supply ONLY \$225.00 (or make SANTA an offer- HE' DEALIN')  
K06R Peter- 837-7459 eves.

## THE BASE STATION

NOW AVAILABLE	1983 ARRL Handbook	\$12.00
IN	1983 US Callbook	\$19.95
STOCK	1983 DX Callbook	\$18.95

AZDEN PCS-300 2M Handheld W/TTP 8 memory  
\$329.95

AZDEN PCS-4000 2M Mobile W/TTP 16 memory  
\$329.95

AZDEN PCS-3000 2M Remote Mobile W/TTP Kit  
\$299.95

SANTEC ST-144 UP 2M 10 memory W/TTP  
\$349.95

TEMPO S-15-T 2M Handheld W/TTP 3 memory  
\$319.00

NEW ITEM: Ferrite Rods  $\frac{1}{2}$ " X 8" \$2.50

NEW ITEM: Ground Rods  $\frac{1}{2}$ " X 8 foot  
Reg. \$18.00 now \$12.00

NEW ITEM: MFJ-104 Dual LCD 24 HR Clock  
W/Alarm \$39.95

NEW ITEM. MFJ-102 24 HR Clock W/Alarm  
\$32.95

NEW ITEM: MFJ-105 12" round Quart Wall  
Clock \$49.95

Pen Watch Pen with built in digital clock  
\$5.95

2M or 220 MHZ Telescoping Antenna with  
FREE shortie rubber duck \$19.95

SUPEREX HEADPHONES from \$14.95

ASTRON POWER SUPPLIES from \$32.95

### CLEAN USED GEAR

ALDA 103 80-40-15M 12 VDC Mobile xcvr  
W/Hustler Ant. \$250.00

DENTRON W2 Forward/reflected watt meter  
\$59.95

YAESEU FT-101-B 80-10 xcvr \$450.00

HALLICRAFTERS HT-37 80-10M xcvr \$100.00

HALLICRAFTERS SC-115 Amateur only rcvr  
\$125.00

HENRY 2KD-3 2KW Amplifier SUPER CLEAN  
\$595.00

## The Base Station

2101 Pacheco St. Concord, CA 94520

(415) 685-7388

## TECHNICAL CORNER

Jim Lisson WA2CEP

### FASTER THAN A SPEEDING BULLET

Radio waves are a form of electromagnetic radiation. They behave very much like visible light. The major difference between the two is the frequency. The speed that radio waves travel depends on the medium they are moving in. In the vacuum of outer space this speed is some 300 million meters per second. The speed of propagation through matter is dependent on the dielectric constant of that matter. In air the speed is so close to that of outer space that, for our purposes, it is the same.

When we want to transport RF power from one place to another we will use a transmission line. For my purpose here and will divide transmission lines into two types; conduction and propagation. The conduction lines use one or more electrical conductors such as with coax, open wire, and single wire with earth return lines. The propagation type of line uses a wave guide. This is only used at UHF and higher frequencies and does not use "conductors" as such but is electromagnetic waves "guided" through a "pipe" much like water in your home. I will limit myself here to the conduction type of transmission lines.

The single conductor line with earth return is not considered as a transmission line as such because, in most every case, it acts as part of the antenna itself. An example of this is a long wire antenna that is run right into the shack and connected to the transmitter. The "feedline" part of this wire may radiate just like the "antenna" part of the wire and this may or may not be wanted.

The overall performance of this feedline and antenna system depends upon the "earth return" part of the "feedline".

A balanced, two wire, open construction line is still used in some applications. This type of line has very low loss, high power handling capability and, if properly used, very low radiation. The "if properly used" is the thing that caused the downfall for this type of line. This, along with the development of low priced coax cable, plus the widespread use of the Collins or Pi-network for output coupling in transmitters, sealed the fate of this once popular line. Open wire line still has many advantages over the now popular coax. One example of this is multi-band operation with one antenna. This is especially true in the HF bands and, with special emphasis on the "if properly used", even part way into the VHF bands.



There are a few characteristics of open wire line, or any transmissions line, that are worth taking a close look at. The first of these is called the "characteristic impedance". Because the name "impedance" is used this is a "AC" value. The value of this impedance depends on the physical construction of the line. It is dependent on the series "Xl" of the wires and the parallel "Xc" between the wires. These reactances are distributed along the length of the feedline. Because one reactance is in series and one is in parallel, and they are of opposite type, the Z of the line is independent of frequency, within the useful frequency range of the transmissions line. Remember that "every little picofarad has a nanohenry all its own". Of a more practical use is the size of the wires and the distance between them. The ARRL Antenna Book is one of many that shows the relationship between the Z of the line and its physical construction.

Next after the Z of a line comes the line loss or attenuation. Because we can use very large wire and air is the major insulator for open wire line, we can achieve very low loss. Also, because air is the dielectric used, the velocity that the power moves down the line is very near the "free space" value. Values of 95-100% are typical for open wire line. The exact number varies with the type of spreaders used and how far apart they are.

Coax cable is, as its name implies, a two wire transmission line with one wire mounted inside the other. Like open wire line, "if properly used", coax will not radiate. Within its frequency range the radiation from open wire line results from unequal currents in the two parallel wires. With coax the relationship is not the same. Now the two conductors are composed of the outside surface of the inside wire and the inside surface of the outside wire (SHIELD). The primary reason for radiation from a coax line is current flow on the outside surface of the outside wire (shield). There are two major reasons for this current flow. One is from the connection of the outside wire of the feedline to the antenna. This is not only the case when a dipole is fed with coax but it can also result when an unbalanced load is fed with a coax line. This condition is also independent of whether or not the load and line are "matched". Imagine if you will that your coax is made up of three concentric conductors. Look at it as if there were two shields, insulated from each other, and shorted together at the load connection. Now the outside shield may start to act as part of the load. This current flow can be reduced by decoupling

# ComputerLand®

## ComputerLand®

### ComputerLand®

#### ComputerLand®

#### ComputerLand®

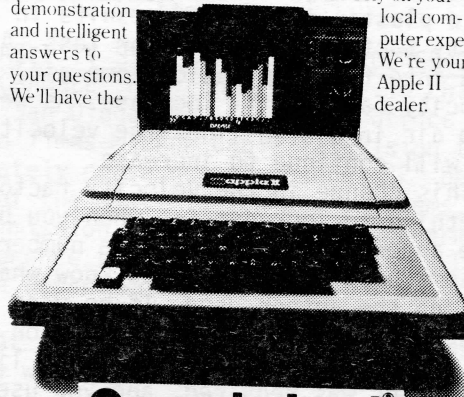
## How to buy a personal computer.

There's only one smart place to buy a personal computer: from your local computer expert.

Look to your Apple® II dealer for efficient product demonstration and intelligent answers to your questions. We'll have the

software and peripherals you want in stock. And we'll be on hand when you need advice and service after the sale.

You can rely on your local computer expert. We're your Apple II dealer.



### ComputerLand® OF CONCORD

1701 Willow Pass Road  
Concord, CA 94522  
(415) 827-4985

### ComputerLand® OF WALNUT CREEK

1815 Ygnacio Valley Road  
Walnut Creek, CA 94598  
(415) 935-6502

See Russ-KA6BPN

this outside shield from the load. This is done with a choke or some other decoupling device usually called a "Balun". A second cause of this RF current flow is from the antenna itself, or some nearby antenna, due to induction. Note that the best choke of balun in the world will be rendered useless by this induced current.

The characteristic  $Z$  of coax is determined much like balanced line. Of concern now is the dielectric used between the two conductors. This comes in a number of "flavors". One is some form of solid plastic. A second is "foamed" plastic. This is like the solid plastic with air bubbles trapped inside. A third flavor is air insulated. This may use beads, discs, or a spiraled plastic insulator to keep the two conductors apart. This "air" insulation may vary from air to a pressurized dry gas like nitrogen. Because the dielectric constant changes as we move from solid plastic through foamed plastic (some air) into air insulation, so will the characteristic  $Z$  of the line, with the ratio of the diameters held constant.

This same change in dielectric constant will also change the velocity factor. The solid plastic insulation results in a velocity factor of 65% more or less. As we move into foamed plastic (some air) the velocity factor will increase. As we move into air insulated lines the velocity factor will continue to increase.

This change in the velocity factor is something to look out for when you build some antenna system using the numbers given in some book. Make sure you know what type of line the author used. If he used solid plastic coax with a velocity factor of 66% and determined that a phasing line of 100 inches was required, and you use a foamed coax with a velocity factor of 80%, then the "100 inches" is not what you want to use. In this case the length required is more like 120 inches or so.

Anytime we want a phasing line with the least amount of coax use a solid dielectric type with a low velocity factor. On the other hand, if you want the longest length of phasing line, such as with two dipoles  $1/4$  wave apart and fed  $90^\circ$  out of phase, then  $1/4$  wave of open wire line, with a velocity factor of nearly 100%, will do the trick nicely.

## Ham Radio Outlet

2811 Telegraph Ave.

Oakland, CA 94609

(415) 451-5757

999 Howard Ave.

Burlingame, CA 94010

(415) 342-5757

Hours: 10 AM to 5:30 PM Monday-Saturday

### IN STOCK

KENWOOD TS-830S

KENWOOD TS-130SE

KENWOOD TS-530S

KENWOOD TS-930S

KENWOOD TR-7950

KENWOOD TR-2500 \$299.95

KENWOOD TR-7950 \$359.95

KENWOOD TR-9130/TT \$494.95

KENWOOD TR-8400 \$439.95

ICOM 2AT )

ICOM 2A )

ICOM 720A ) In Stock

ICOM 730 )

ICOM 740 )

ICOM IC-R70 NEW RECEIVER

ICOM IC-45A Call for Info

ETO/ALPHA 76PA

3-8874 TUBES

1KW DC/2KW PEP

NO TIME LIMIT

\$1799.95

(LIST \$2395.00)

ARC DEVIATION METER  
ON SALE \$49.95

VOCOM 5/8 wave 2m Mini-duckie  
in stock

NEW IN STOCK: VIBROPLEX 'BRASS RACER'

**OUR ONLY BUSINESS IS HAM RADIO!**

HAM RADIO OUTLET STORES  
HAVE THE LARGEST  
AMATEUR RADIO INVENTORY  
IN NORTHERN CALIFORNIA



## Westlink Report

Reprinted with permission

AMATEUR RADIO WILL BE OPERATED FROM THE SPACE SHUTTLE COLUMBIA. Astronaut Dr. Owen Garriott, W5LFL has been granted tentative permission from NASA to use 2 meter FM from the orbiter during the STS-9 mission, scheduled for October of 1983. Present plans call for Garriott to use a low power rig such as a handy talky or a "black box" constructed in the ARRL Lab. The radio will be required to meet the rigid specifications of the shuttle as determined by NASA.

ARRL President Vic Clark, W4KFC is personally overseeing the project for the League and it is expected that all coordination for the Amateur portion of the STS-9 mission will be handled through Bernard Glassmeyer, W9KDR, its Satellite Coordinator. AMSAT is also expected to play a significant role as well.

Garriott's Amateur operation from Columbia will be limited to the lower two Megahertz of the band in the interest of making this a world-wide good will mission, and to avoid "20 meter type" pile-ups on U.S. and Canadian repeater systems. The exact frequencies that will be used, as well as the proper procedure to work the spacecraft will be announced later. To avoid confusion and pile-ups, several ideas are being considered, including the designation of specific repeaters around the world to act as "gateway" stations through which all QSO's will be coordinated.

The "approvals" for this first manned space Amateur experiment have been okayed by NASA in Houston and only await a final "green light" from Washington. Credit for this "first" belongs to the ARRL along with Garriott and NBC Network News Correspondent Roy Neal, K6DUE.

**30 METER WARNING:** If you are using the new 10 MHz WARC band (WLR 379), be aware that the band is divided into 2 sections for use by U.S. Hams. CW and RTTY at 250 watts maximum power input is authorized between 10.100 and 10.109 MHz, and 10.115 through 10.150 MHz ONLY. The spectrum between 10.109 and 10.115 MHz is reserved for government operations only. The FCC is monitoring the band, and any U.S. Amateur station heard operating in the protected 6 KHz will be cited and possibly sent a Show Cause Order which could lead to license revocation. Operating in this 6kHz could not only cost you your license, but all Amateurs the continued use of the band.

LOGGING COULD BECOME A THING OF THE PAST if the FCC is successful in a new Notice of Proposed Rule Making. In PR Docket 82-726, the Commission suggests deleting all logging requirements other than those which they term "purely operational," such as methods used to provide the security of a remotely controlled station against unauthorized operation. In addition, Amateurs would be required to retain certain information documenting the technical aspects of a repeater, remote base or auxiliary link station, but not necessarily as part of a station log. The logging required by international treaty would, of course, be retained.

THE FCC HAS PROPOSED A RADICAL CHANGE IN NOVICE EXAMS. If it is adopted, it would require the (General Class or higher) volunteer examiner to both devise and administer both the Code and Theory portions of the test. If an applicant passed, the examiner would certify the fact on a Form 610, and mail just the completed form to the FCC for the issuance of a license. The person administering the test would be required to keep examination material on file for one year. Currently, the volunteer devises only the CW portion of the examination, with the FCC supplying the written.

A CABLE TV SYSTEM HAS BEEN ORDERED OFF CABLE CHANNEL "F". The Engineer in charge of the San Diego, CA FCC Field Office has ordered Times-Mirror Cable Television to immediately cease use of Channel "F" because of the system's leakage problems. The Commission specifically cited "harmful interference to communications of the California Department of Forestry." Times-Mirror Cable serves the community of Escondido. At presstime, it is unknown if the company will appeal. Tnx W9JUV.

A NEW FCC REPORT AND ORDER GRANTS CW CREDIT for holders of FCC issued Commercial Radiotelegraph licenses toward obtaining an Amateur license. A licensee who meets the criteria need only take the written exam in order to obtain the Ham license, under these new rules.



# DAILY DX NETS AROUND THE WORLD

GMY

QRG

NET AND CALL

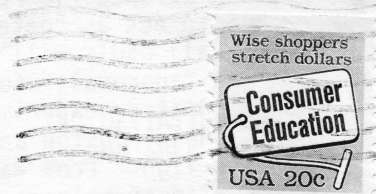
00:00	3645	USSR Net
02:00	14313	Pacific Maritime Mobile
04:30	21203	ANZA Net, VK3PA
05:00	14220	KC6 Net
06:30	14220	220-Net, VK2BKD, VK9NS
07:00	14250	P29-Net
09:00	7250	Triplo H-Net
09:00	21390	Pacific Maritime Mobile
10:00	14175	Caribbean Net, J3AH
11:00	14220	DX Info Net, G3SVK, F6FMX
11:00	21155	DX9KE Net
11:00	28750	DK20C Net
12:00	21215	Friendship Net
12:00	14320	Southeast Asia Net
12:00	14098	DX Info Net, RTTY
12:00	28500	French Net
12:00	21183	VK-EU-Net, VK3BOE
14:00	21230	JA-DX-Net, JA6BEE
16:00	14300	18VCP Net
16:00	14150	VU-Net, VU2TN
16:30	14220	DX Info Net, G3SVK, F6FMX
17:00	14177	E. Africa Safari, 5Z4RT
17:00	14333	VL System
17:00	14225	Family Hour, W7PHO
17:30	21170	French Net, FY7AN
18:00	21230	Red de Emergencia
18:00	21275	Nacional Argentina
18:00	21355	WA2NHE Net
18:30	21294	Africa Net, W2PPG
19:30	14175	African Safari, W3WGS
22:00	14280	Caribbean Rnd. Table
22:30	14287	VP2MH, Y09WL
23:00	14225	WA2NHE Net
23:15	28575	Central America Net
23:30	21345	(QSY to 40 Meters)
		Family Hour, W7PHO
		Family Hour, W7PHO
		Family Hour, W7PHO
		Family Hour, W7PHO

Thanks to The LARK, also W6SYL, Paul  
also "THE DXER AND THE "CCRC CIRCLE"

## Miscellaneous

From:  
Mt. Diablo Amateur Radio Club, Inc.  
P.O. Box 23222  
Pleasant Hill, Calif. 94523

Affiliated with the ARRL  
Affiliated with the American Red Cross



**FIRST CLASS MAIL**

